

1. Simplify the expression below and choose the interval the simplification is contained within.

$$13 - 4^2 + 11 \div 17 * 15 \div 10$$

- A. $[29.43, 30.3]$
 - B. $[-2.83, -1.86]$
 - C. $[-3.87, -2.33]$
 - D. $[28.66, 29.69]$
 - E. None of the above
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2. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{-2160}{9}}$$

- A. Rational
 - B. Not a Real number
 - C. Irrational
 - D. Whole
 - E. Integer
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3. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{9 - 77i}{8 - 6i}$$

- A. $a \in [533, 535]$ and $b \in [-6.5, -4.5]$
- B. $a \in [-4.5, -2.5]$ and $b \in [-8, -6]$
- C. $a \in [4.5, 6.5]$ and $b \in [-6.5, -4.5]$
- D. $a \in [1, 2.5]$ and $b \in [12, 14]$

E. $a \in [4.5, 6.5]$ and $b \in [-562.5, -561]$

4. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(4 - 9i)(-2 - 10i)$$

- A. $a \in [79, 87]$ and $b \in [56, 62]$
B. $a \in [-16, -7]$ and $b \in [88, 93]$
C. $a \in [-99, -94]$ and $b \in [19, 23]$
D. $a \in [-99, -94]$ and $b \in [-24, -21]$
E. $a \in [79, 87]$ and $b \in [-64, -57]$
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5. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{0}{15}} + \sqrt{4}i$$

- A. Rational
B. Irrational
C. Not a Complex Number
D. Pure Imaginary
E. Nonreal Complex
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6. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-8 + 5i)(-9 - 7i)$$

- A. $a \in [31, 44]$ and $b \in [98, 104]$
B. $a \in [65, 78]$ and $b \in [-37, -29]$
C. $a \in [107, 110]$ and $b \in [11, 15]$

D. $a \in [107, 110]$ and $b \in [-15, -7]$

E. $a \in [31, 44]$ and $b \in [-101, -99]$

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7. Simplify the expression below and choose the interval the simplification is contained within.

$$5 - 13 \div 19 * 7 - (20 * 4)$$

A. $[84.7, 85.14]$

B. $[-79.27, -77.74]$

C. $[-75.97, -73.49]$

D. $[-80.42, -79.52]$

E. None of the above

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8. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{-1575}{15}} + \sqrt{60}$$

A. Rational

B. Nonreal Complex

C. Not a Complex Number

D. Pure Imaginary

E. Irrational

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9. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-36 - 77i}{-1 + 6i}$$

A. $a \in [-428, -425.5]$ and $b \in [6, 8.5]$

- B. $a \in [13, 14.5]$ and $b \in [-4.5, -3]$
 - C. $a \in [-12.5, -11]$ and $b \in [292.5, 294]$
 - D. $a \in [35, 37.5]$ and $b \in [-13.5, -12.5]$
 - E. $a \in [-12.5, -11]$ and $b \in [6, 8.5]$
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10. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{-525}{5}}$$

- A. Whole
 - B. Not a Real number
 - C. Rational
 - D. Integer
 - E. Irrational
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11. Simplify the expression below and choose the interval the simplification is contained within.

$$4 - 20^2 + 2 \div 6 * 16 \div 7$$

- A. $[-395.45, -394.63]$
 - B. $[403.57, 404.34]$
 - C. $[-396.71, -395.71]$
 - D. $[404.69, 404.85]$
 - E. None of the above
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12. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{576}{49}}$$

- A. Rational
 - B. Whole
 - C. Irrational
 - D. Not a Real number
 - E. Integer
-

13. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{54 + 44i}{-1 + 5i}$$

- A. $a \in [-55.5, -53]$ and $b \in [8.74, 8.84]$
 - B. $a \in [6, 7.5]$ and $b \in [-314.01, -313.96]$
 - C. $a \in [165, 167]$ and $b \in [-12.08, -12.05]$
 - D. $a \in [6, 7.5]$ and $b \in [-12.08, -12.05]$
 - E. $a \in [-11, -10]$ and $b \in [8.65, 8.71]$
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14. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-10 + 2i)(-4 + 3i)$$

- A. $a \in [34, 36]$ and $b \in [-44, -34]$
 - B. $a \in [42, 50]$ and $b \in [-25, -21]$
 - C. $a \in [34, 36]$ and $b \in [34, 39]$
 - D. $a \in [38, 42]$ and $b \in [-9, 10]$
 - E. $a \in [42, 50]$ and $b \in [17, 27]$
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15. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{-1815}{11}} + \sqrt{0}i$$

- A. Irrational
 - B. Pure Imaginary
 - C. Nonreal Complex
 - D. Not a Complex Number
 - E. Rational
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16. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-2 + 8i)(5 + 7i)$$

- A. $a \in [-68, -63]$ and $b \in [-26.15, -24.4]$
 - B. $a \in [46, 49]$ and $b \in [53.91, 54.51]$
 - C. $a \in [-68, -63]$ and $b \in [25.99, 27.39]$
 - D. $a \in [-18, -5]$ and $b \in [55.28, 56.57]$
 - E. $a \in [46, 49]$ and $b \in [-54.41, -53.76]$
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17. Simplify the expression below and choose the interval the simplification is contained within.

$$18 - 12^2 + 7 \div 8 * 13 \div 16$$

- A. $[-125.62, -124.54]$
- B. $[-126.26, -125.96]$
- C. $[161.86, 162.42]$
- D. $[162.05, 162.91]$
- E. None of the above

18. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{2}{-11} + 81i^2$$

- A. Pure Imaginary
 - B. Nonreal Complex
 - C. Rational
 - D. Irrational
 - E. Not a Complex Number
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19. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{63 + 22i}{-5 - i}$$

- A. $a \in [-13.39, -12.83]$ and $b \in [-3, -1]$
 - B. $a \in [-13.39, -12.83]$ and $b \in [-48, -45]$
 - C. $a \in [-12.9, -12.46]$ and $b \in [-23.5, -21.5]$
 - D. $a \in [-337.01, -336.76]$ and $b \in [-3, -1]$
 - E. $a \in [-11.33, -11.17]$ and $b \in [-8.5, -6]$
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20. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{-990}{5}}$$

- A. Whole
- B. Integer
- C. Irrational

- D. Rational
 - E. Not a Real number
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21. Simplify the expression below and choose the interval the simplification is contained within.

$$15 - 20 \div 7 * 13 - (11 * 14)$$

- A. $[-140.22, -134.22]$
 - B. $[-181.14, -174.14]$
 - C. $[168.78, 170.78]$
 - D. $[-466, -460]$
 - E. None of the above
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22. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{9025}{361}}$$

- A. Whole
 - B. Integer
 - C. Irrational
 - D. Not a Real number
 - E. Rational
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23. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-54 + 88i}{3 - 4i}$$

- A. $a \in [-514.5, -513.5]$ and $b \in [1.5, 2.5]$

- B. $a \in [7, 8.5]$ and $b \in [19, 20]$
 - C. $a \in [-19, -17]$ and $b \in [-22.5, -21.5]$
 - D. $a \in [-21.5, -19.5]$ and $b \in [47.5, 48.5]$
 - E. $a \in [-21.5, -19.5]$ and $b \in [1.5, 2.5]$
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24. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(9 - 8i)(-4 + 3i)$$

- A. $a \in [-65, -55]$ and $b \in [-5, -2]$
 - B. $a \in [-40, -27]$ and $b \in [-28, -19]$
 - C. $a \in [-15, -5]$ and $b \in [57, 61]$
 - D. $a \in [-65, -55]$ and $b \in [5, 6]$
 - E. $a \in [-15, -5]$ and $b \in [-59, -56]$
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25. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{-20}{2} + 49i^2$$

- A. Rational
 - B. Nonreal Complex
 - C. Not a Complex Number
 - D. Irrational
 - E. Pure Imaginary
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26. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(10 - 6i)(2 + 4i)$$

- A. $a \in [41, 47]$ and $b \in [-29, -25]$
 - B. $a \in [17, 23]$ and $b \in [-25, -18]$
 - C. $a \in [41, 47]$ and $b \in [24, 29]$
 - D. $a \in [-6, -1]$ and $b \in [50, 53]$
 - E. $a \in [-6, -1]$ and $b \in [-53, -51]$
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27. Simplify the expression below and choose the interval the simplification is contained within.

$$6 - 12^2 + 2 \div 16 * 17 \div 13$$

- A. $[-137.91, -137.54]$
 - B. $[149.66, 150.07]$
 - C. $[150.15, 150.24]$
 - D. $[-138.24, -137.98]$
 - E. None of the above
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28. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$-\sqrt{\frac{324}{625}} + 25i^2$$

- A. Pure Imaginary
 - B. Irrational
 - C. Not a Complex Number
 - D. Nonreal Complex
 - E. Rational
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29. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{27 - 11i}{4 + 8i}$$

- A. $a \in [6.5, 8]$ and $b \in [-2, 0.5]$
 - B. $a \in [-0.5, 0.5]$ and $b \in [-261.5, -258.5]$
 - C. $a \in [18.5, 20.5]$ and $b \in [-4, -2.5]$
 - D. $a \in [1.5, 3.5]$ and $b \in [1, 4.5]$
 - E. $a \in [-0.5, 0.5]$ and $b \in [-4, -2.5]$
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30. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{36}{529}}$$

- A. Whole
 - B. Rational
 - C. Irrational
 - D. Not a Real number
 - E. Integer
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